

**Exercice 1**

Calculer :

$$A = \sqrt{12} = \sqrt{4 \times 3} = \sqrt{4} \times \sqrt{3} = \boxed{2\sqrt{3}}$$

$$B = \sqrt{18} = \sqrt{9 \times 2} = \sqrt{9} \times \sqrt{2} = \boxed{3\sqrt{2}}$$

$$C = \sqrt{300} = \sqrt{100 \times 3} = \sqrt{100} \times \sqrt{3} = \boxed{10\sqrt{3}}$$

$$D = 2\sqrt{45} = 2\sqrt{9 \times 5} = 2\sqrt{9} \times \sqrt{5} = 2 \times 3\sqrt{5} = \boxed{6\sqrt{5}}$$

$$E = 3\sqrt{20} = 3\sqrt{4 \times 5} = 3 \times 2 \times \sqrt{5} = \boxed{6\sqrt{5}}$$

$$F = 5\sqrt{54} = 5\sqrt{9 \times 6} = 5\sqrt{9} \times \sqrt{6} = 5 \times 3\sqrt{6} = \boxed{15\sqrt{6}}$$

**Exercice 2**

Calculer :

$$A = 2\sqrt{3} - 6\sqrt{3} = \boxed{-4\sqrt{3}}$$

$$B = -7\sqrt{2} - 12\sqrt{2} = \boxed{-19\sqrt{2}}$$

$$C = -7\sqrt{3} - \sqrt{27} = -7\sqrt{3} - \sqrt{9 \times 3} = -7\sqrt{3} - 3\sqrt{3} = \boxed{-10\sqrt{3}}$$

$$D = 6\sqrt{5} - 5\sqrt{20} = 6\sqrt{5} - 5\sqrt{4 \times 5} = 6\sqrt{5} - 5 \times 2\sqrt{5} = 6\sqrt{5} - 10\sqrt{5} = \boxed{-4\sqrt{5}}$$

**Exercice 3**

Calculer :

$$A = (2\sqrt{5})^2 = 4 \times 5 = \boxed{20}$$

$$C = (4\sqrt{2})^2 = 16 \times 2 = \boxed{32}$$

$$E = 2\sqrt{5} \times 4\sqrt{2} = \boxed{8\sqrt{10}}$$

$$B = (-3\sqrt{10})^2 = 9 \times 10 = \boxed{90}$$

$$D = 3\sqrt{5} \times 2\sqrt{5} = 6 \times 5 = \boxed{30}$$

$$F = -3\sqrt{10} \times 5\sqrt{3} = \boxed{-15\sqrt{30}}$$

**Exercice 4**

Calculer :

$$A = 2\sqrt{3}(-2 - \sqrt{3}) = -4\sqrt{3} - 2 \times 3 = \boxed{-4\sqrt{3} - 6}$$

$$B = 4\sqrt{2}(2\sqrt{3} + \sqrt{2}) = 8\sqrt{6} + 4 \times 2 = \boxed{8\sqrt{6} + 8}$$

**Exercice 5**

Calculer :

$$A = (1 + \sqrt{3})(-2\sqrt{3} + 4) = -2\sqrt{3} + 4 - 2 \times 3 + 4\sqrt{3} = 4 - 6 + 2\sqrt{3} = \boxed{-2 + 2\sqrt{3}}$$

$$B = (2\sqrt{3} - \sqrt{2})(4\sqrt{2} + \sqrt{3}) = 8\sqrt{6} + 2 \times 3 - 4 \times 2 - \sqrt{6} = 7\sqrt{6} + 6 - 8 = \boxed{7\sqrt{6} - 2}$$

**Exercice 6**

Calculer :

$$A = (\sqrt{7} - \sqrt{5})^2 = 7 - 2 \times \sqrt{7} \times \sqrt{5} + 5 = \boxed{12 - 2\sqrt{35}}$$

$$C = (4 - 5\sqrt{3})^2 = 16 - 2 \times 4 \times 5\sqrt{3} + (5\sqrt{3})^2 = 16 - 40\sqrt{3} + 75 = \boxed{91 - 40\sqrt{3}}$$

$$B = (2\sqrt{3} + 2)^2 = (2\sqrt{3})^2 + 2 \times 2\sqrt{3} \times 2 + 2^2 = 12 + 8\sqrt{3} + 4 = \boxed{16 + 8\sqrt{3}}$$

$$D = (\sqrt{3} + 2\sqrt{5})^2 = (\sqrt{3})^2 + 2 \times \sqrt{3} \times 2\sqrt{5} + (2\sqrt{5})^2 = 3 + 4\sqrt{15} + 20 = \boxed{23 + 4\sqrt{15}}$$